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period than to correlate both the Potomac and the time-break with the Jurassic and assume that the lower Cretaceous horizons of Europe lack representation in our Atlantic series.

In drawing attention to these matters of apparent difficulty I have no intention to controvert Prof. Marsh's view, but merely to show how desirable it is that he set forth the reasons therefor.

G. K. GILBERT.

WASHINGTON, D. C., December 5, 1896.

#### LE CONTE'S ELEMENTS OF GEOLOGY.

TO THE EDITOR OF SCIENCE: In commenting on Le Conte's 'Geology' (SCIENCE, November 27th), Prof. C. W. Hall objects to 'the multiplicity of theories advanced and discussed.' He says: "A text-book should be the exponent of a doctrine. It should be constructed on the definite and positive plan best adapted, in the mind of the author, to expound his body of principles. When several theories are presented and the student practically told to take his choice, or when he is told that all are true, the function of the text-book disappears." The student who leans upon a text-book based only on facts and well understood phenomena 'subjects himself to the inspiration of positive ideas, and, in his intellectual processes, acquires that habit of decision so essential to practical success.'

It is with diffidence that I venture to dissent from Prof. Hall's opinion, because he is an experienced educator and I am not; but it appears to me that something is to be said in favor of occasionally submitting to students alternative opinions regarding an unsettled question. The scientific text-book which presents only facts and accepted principles, or gives only the author's opinion on open questions, must tend to leave the student with the impression that scientific knowledge is complete. The statement and discussion of rival hypotheses not only exhibits the actual incompleteness of knowledge, but illustrates the method of progress, and it appears to me quite as important to the world's future that the rising generation shall learn the method of research as that it become acquainted with the results of research. It may also be questioned whether the habit of decision inspired by the exclusive assimilation

of positive ideas will usually lead to the best results when applied to the practical affairs of life. Problems of affairs resemble, in the complexity of their factors, the problems of such a science as geology; and the mind which habitually suspends judgment until various points of view have been considered may gain, through the wisdom of its decisions, as much as it loses through delay.

G. K. GILBERT.

WASHINGTON, November 30th.

#### THE POSITION OF THE COMPANION OF SIRIUS.

TO THE EDITOR OF SCIENCE: A brief statement regarding the correspondence of the position of the companion of Sirius as observed with the 36-inch refractor of this observatory with the positions obtained from the published elements may be of interest to the readers of SCIENCE.

So far as I know, four sets of elements have been published, which are based upon all the micrometric measures previous to periastron, namely, those by Auwers, Burnham, Howard and Zwiers. Mr. Burnham gives no ephemeris with his orbit (period, 51.97 yrs.), but from the elements it is safe to say that his ephemeris would not differ very widely from that computed by Zwiers. An approximate interpolation in the ephemerides by the other computers gives the following position for 1896.8:

	P.	s.	Period.
Howard (A. J. 235)	214. <sup>o</sup> 6	4."75	(57.02 yrs.)
Auwers (A. N. 3085)	175. 7	3. 92	(49.40 " )
Zwiers (A. N. 3336)	186. 4	4. 05	(51.10 " )
The simple mean is	192. <sup>o</sup> 2	4."24	

The mean of five measures of position angle and four of distance by Prof. Schaeberle and myself gives for the same date, 189.<sup>o</sup>3, 3."67 (A. J. 388). This communication is suggested by the note on the same subject by 'H. J.' in the November 20, 1896, number of SCIENCE.

R. G. AITKEN.

MT. HAMILTON, November 30, 1896.

#### COMPLIMENT OR PLAGIARISM.

MY courteous friend, Prof. Fiske, hastens to acknowledge that the quotation from Halsted's Elementary Synthetic Geometry in SCIENCE, p. 656, shows that "the criticism is not applicable to his more recent work."